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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,821	08/14/2001	I-Fan Wang	USFFIL.121A	8832

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EXAMINER

MENON, KRISHNAN S

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/929,821

Applicant(s)

WANG ET AL.

Examiner

Krishnan S Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/29/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION

Claims 1-15 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant has not provided a clear quantitative definition of macrovoids (see the description of macrovoids in specification page 8) in the specification or claims as originally filed. Information about macrovoids contained in the declaration of 2/17/04 is new matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-4 and 8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wang et al (US6,045,899).

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Wang teaches a cellulosic membrane as in claims 1-3 as follows:

Claim 1: A cellulosic membrane, the membrane cast into flat sheet (col 8 lines 22-37) from a dope comprising a cellulosic polymer and a solvent (col 4 lines 30-35); the membrane having a first porous face having a first average pore diameter, a second porous face having a second average pore diameter, and a porous supporting structure therebetween wherein the supporting structure comprises a reticulated network of flow channels, the first and second average pore diameters having an asymmetry of at least about 2:1, and wherein the porous faces and the porous supporting structure comprise a network of structural surfaces capable of contacting a filter stream (col 3 lines 9-26, col 5 line 65-col 6 line 34). Membrane is substantially free of macrovoids (col 7 lines 2-15; the '899 reference teaches that asymmetric membranes can be prepared from mixed cellulose esters by the methods mentioned in the prior arts – col 4 lines 30-35)

Claim 2: The membrane of Claim 1, wherein the asymmetry between the average pore diameters of the first porous face and the second porous face is at least about 5:1. (Col 6 lines 30-34)

Claim 3. The membrane of Claim 1, wherein the asymmetry between the average pore diameters of the first porous face and the second porous face is at least about 10:1. (Col 6 lines 30-34)

Claim 4. The membrane of Claim 1, wherein the asymmetry between the average pore diameters of the first porous face and the second porous face is at least about 20:1. (Col 6 lines 30-34)

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Claim 8. The membrane of Claim 1, wherein the cellulosic polymer comprises a cellulose ester. (col 4 lines 30-34)

2. Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by, or in the alternative, under 35 USC 103(a) as unpatentable over, Wang et al (US 6,045,899).

Wang teaches all the limitations of claim 1 as above, claims 14 and 15 add further limitations as follows:

Claim 14. The membrane of Claim 1, wherein the dope comprises a dispersion of the cellulosic polymer in the solvent.

Claim 15. The membrane of Claim 1, wherein the dope comprises a homogeneous solution of the cellulosic polymer in the solvent.

These limitations are related to process. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re *Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

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3. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by, or in the alternative, under 35 USC 103(a) as unpatentable over, Del Pico (US 3,762,566).

Del Pico teaches cellulosic ultrafiltration membranes as in the instant claims as follows:

Claim 1: A cellulosic membrane, the membrane cast from a dope comprising a cellulosic polymer and a solvent (col 2 line 52 – col 4 line 67), the membrane having a first porous face having a first average pore diameter, a second porous face having a second average pore diameter, and a porous supporting structure therebetween wherein the supporting structure comprises a reticulated network of flow channels (col 4 lines 4-20, lines 38-66).

Del Pico does not specify 'the first and second average pore diameters having an asymmetry of at least about 2:1, the asymmetry between the average pore diameters of the first porous face and the second porous face is at least about 5:1. (claim 2); 10:1 (claim 3); 20:1 (claim 4)'. However, since the membrane of Del Pico is similar to the membrane of the instant claims, and describes a similar structure (col 4 lines 5-65), the physical properties also should be inherently similar. Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation under 35 U.S.C. 102." In re

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Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). This same rationale should also apply to product, apparatus, and process claims claimed in terms of function, property or characteristic. Therefore, a 35 U.S.C. 102/103 rejection is appropriate for these types of claims as well as for composition claims.

Claim 5. The membrane of Claim 4, wherein the membrane has a molecular weight cut-off ranging from about 10k Daltons to about 300k Daltons (col 7 lines 15-25).

Claim 6. The membrane of Claim 4, wherein the membrane has a molecular weight cut-off ranging from about 10k Daltons to about 50k Daltons. (col 7 lines 15-25).

Claim 7: The membrane of Claim 4, wherein the membrane has a molecular weight cut-off ranging from about 10k Daltons to about 30k Daltons. (col 7 lines 15-25).

Claim 8. The membrane of Claim 1, wherein the cellulosic polymer comprises a cellulose ester. (col 6 lines 30-40; col 8 lines 23-26)

Claim 9. The membrane of Claim 1, wherein the cellulose ester comprises a cellulose acetate (col 6 lines 30-40)

Claim 10. The membrane of Claim 1, wherein the cellulose acetate is selected from the group consisting of cellulose diacetate, cellulose triacetate, cellulose acetate butyrate, cellulose acetate propionate, cellulose nitrate, methyl cellulose, and mixtures thereof (col 6 lines 30-40)

Claim 11. The membrane of Claim 1, wherein the cellulosic polymer on a surface of the membrane comprises cellulose. (col 6 lines 30-40)

Claim 12. The membrane of Claim 1, wherein the cellulose is produced via hydrolyzation of the membrane: [product by process: In re Thorpe] (col 6 lines 30-40)

Claim 13. The membrane of Claim 1, wherein the cellulose is produced via saponification of the membrane [product by process: In re Thorpe].

Claim 14. The membrane of Claim 1, wherein the dope comprises a dispersion of the cellulosic polymer in the solvent. (col 8 lines 23-26)

Claim 15. The membrane of Claim 1, wherein the dope comprises a homogeneous solution of the cellulosic polymer in the solvent. (col 8 lines 23-26)

Response to Amendment

The declaration under 37 CFR 1.132 filed 2/17/04 is insufficient to overcome the rejection of claims based upon Wang (899) and Del Pico (566) references as set forth in the last Office action because:

(1) Wang '899 ref: Wang '899 teaches that asymmetric membranes of mixed cellulose esters can be prepared from the prior arts mentioned in the reference (col 4 lines 30-35). (Of particular interest is the prior art described in col 3 lines 50-67, teaching an asymmetric membrane similar to that of claim 1 with no mention of 'macrovoids'. The reference cited (GB 2 199 786 A) teaches asymmetric membranes including cellulose, and contain SEM pictures of 2000 magnification, which show no macrovoids). The reference also teaches that the porosity of the coarse layer could be about 100 microns (col 7 lines 2-15). The figure 1 of the declaration shows a cross section of a membrane (allegedly produced by the method of '899) having macrovoids, but the scale indicator on the figure shows that the voids are of 100 microns or less in size. Applicant has not provided a clear quantitative definition of 'macrovoids' in the

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specification and claims as originally filed for one of ordinary skill in the art to determine what constitutes a macrovoid. Therefore, the declaration re the "macrovoids" is insufficient to overcome the reference. To the examiner, it appears that the method of '899 produces membranes with coarse porosity of about 100 microns, as taught by '899. It may also be noted that the Applicant's figures 4a and 4b show voids in the cross section that seem to be larger than the scale indicator on those pictures, ie., 50 microns.

(2) Del Pico ref teaches a cellulosic membrane cast on porous substrate (see abstract, and particularly, claim 1). While the details of this reference (examples) are shown with a porous tubular support, there is nothing in the reference that indicates that it is only for porous tubular support, and the reference claims all porous supports by claim 1.

(3) The arguments put forth in the declaration re the Del Pico membrane preparation are related to process, whereas the instant claims are for the product – membrane, and therefore, these arguments are not commensurate in scope with the claims. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re *Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Response to Arguments

Applicant's arguments filed 2/17/04 have been fully considered but they are not persuasive.

Applicants' arguments are based on the newly added elements in the base claim 1, ie., 'flat sheet membrane' and 'substantially free of macrovoids', which are addressed above in the 'response to amendment'.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner


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